

Amendments to the Claims:

Please amend claims 2-7, 10 and 12-13, add new claims 56-60, and cancel claims 1 and 8-9.
This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

- 1 1. (canceled).
- 1 2. (currently amended) The method of claim ~~1~~ 10 wherein the presence or
2 absence of a nick in a DNA molecule is measured by determining the change in electrophoretic
3 mobility of nicked DNA on an electrophoretic gel.
- 1 3. (currently amended) The method of claim ~~1~~ 10 wherein the presence or
2 absence of a nick in a DNA molecule is determined by a SI nuclease assay.
- 1 4. (currently amended) The method of claim ~~1~~ 10 wherein the presence or
2 absence of a nick in a DNA molecule is determined by a primer extension reaction.
- 1 5. (currently amended) The method of claim ~~1~~ 10 wherein the presence or
2 absence of a nick in a DNA molecule is determined by a polymerase chain reaction amplification
3 reaction.
- 1 6. (currently amended) The method of claim ~~1~~ 10 wherein the presence or
2 absence of a nick in a DNA molecule is determined by a DNA sequencing assay.
- 1 7. (currently amended) The method of claim ~~1~~ 10 wherein the presence or
2 absence of a nick in a DNA molecule is determined by a protein binding assay.
- 1 8. (canceled).
- 1 9. (canceled).

1 10. (currently amended) A method of detecting eukaryotic nicking
2 transcription factor activity comprising the steps of:
3 a) providing a DNA template comprising at least one binding region for a
4 transcription factor;
5 b) contacting the DNA template with at least one eukaryotic nicking
6 transcription factor; and
7 c) detecting the presence or absence of a nick in the DNA template at or near
8 the binding region of the eukaryotic nicking transcription factor, wherein the presence of a nick
9 in the DNA template indicates nicking transcription factor activity.

1 11. (original) The method of claim 10, wherein the transcription factor is
2 in a nuclear cell extract.

1 12. (currently amended) The method of claim 10, further comprising the
2 steps of:
3 a) isolating the DNA template; and
4 b) wherein the DNA template is inserted inserting the DNA template into a
5 viral or plasmid vector and introduced introducing the template into a cell.

1 13. (currently amended) The method of claim 10, ~~wherein the DNA template~~
2 ~~is fixed to a matrix~~, further comprising the step of fixing the DNA template to a matrix.

1 14. (original) The method of claim 13, wherein the matrix is a biological
2 chip.

1 15-55. (canceled).

1 56. (new) The method of claim 10, wherein the eukaryotic nicking
2 transcription factor comprises a site specific DNA binding transcription factor.

1 57. (new) The method of claim 56, wherein the eukaryotic nicking
2 transcription factor comprises an enhancer binding protein.

1 58. (new) The method of claim 56, wherein the eukaryotic nicking
2 transcription factor comprises a general transcription factor.

1 59. (new) The method of claim 10, wherein the eukaryotic nicking
2 transcription factor regulates the transcription of structural RNA.

1 60. (new) The method of claim 10, wherein the eukaryotic nicking
2 transcription factor regulates the transcription of protein encoding RNA.

1 61. (new) The method of claim 10, wherein the eukaryotic nicking
2 transcription factor is selected from the group consisting of CREB, TFIIC and c-jun.